

Maine Clean Government  
Initiative  
Biennial Plan

Submitted to:  
Department of Environmental Protection

Submitted by:  
Department of Human Services

May 31, 2002

## **1.0 Introduction**

The Department of Human Services is responsible for fostering the health, safety and wellbeing of the citizens of Maine. In pursuit of this vision the Department strives to improve the quality of and access to services and products; and develop beneficial policies and programs in partnership with customers, providers, and funding sources.

The Department is comprised of 5 Bureaus and maintains a staff of approximately 2615 employees:

- Child and Family Services
- Elder and Adult Services
- Family Independence
- Medical Services
- Health

Facilities operated by the Department are generally used for office functions with the exception of the Health and Environmental Testing Laboratory (HETL) located in Augusta. The HETL is one of six Divisions within the Bureau of Health. The HETL is located on 221 State Street in Augusta and employs approximately 65 staff.

The Commissioner appointed John (Jack) Krueger, MSChE, Chief of Operations of the Health and Environmental Testing Laboratory to assume responsibility for ensuring the effective development and implementation of HETL agency activities under the Maine Clean Government Initiative.

## **2.0 Issues Identification**

The Department identified the Health and Environmental Testing Laboratory as the Department function offering the greatest opportunities for reducing environmental impacts. As such, the evaluation of aspect and impact evaluation was focused specifically on this Department activity. As part of his on-going environmental, health and safety management responsibilities, the Laboratory Chief identified environmental aspects associated with the Department's activities. Environmental aspects were further evaluated and defined in meeting held between Mr. Krueger and Ms. Jane Carpenito of Rizzo Associates, a Maine Clean Government Initiative Consultant.

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### 3.0 Health and Environmental Testing Laboratory Profile



#### Vision Statement

##### **MAINE PUBLIC HEALTH AND ENVIRONMENTAL TESTING LABORATORY**

##### **Introduction:**

The goals of the Health and Environmental Testing Laboratory are to isolate, identify, analyze and monitor any biological, chemical, or radiological hazards which are capable of causing harm. We will assist other agencies in the prevention, treatment, and control of such hazards which threaten the community or environment. These essential services shall be provided cost effectively through a fee schedule established with the flexibility of making them available regardless of the public's ability to pay. Other roles include consultation with other agencies on state policy development and the quality assurance oversight of services provided by the public and private sectors.

##### **Core functions:**

##### **RAPID RESPONDER TO SUSPECTED OUTBREAKS AND CONTAMINATION EVENTS:**

- The HETL, in concert with public health agencies and other laboratories, will have the capability to rapidly identify, track and contain outbreaks and sources of biological or chemical public health threats.

##### **INTEGRATED INFORMATION MANAGER:**

- The HETL will provide an important link for the accumulation, blending, and distribution of scientific information in the support of public health programs. The HETL will also provide expert consultation on analytical data generated at the HETL and data generated elsewhere.

##### **ENVIRONMENTAL MONITOR:**

- The HETL will be a leader in epidemiological surveillance and environmental testing. Laboratory data will provide necessary information to assess and monitor environmental health. Low detection level analyses will provide an indicator of change, before significant health effects can occur.

##### **ADVOCATE FOR APPROPRIATE AND HIGH QUALITY TESTING:**

- The HETL will be recognized as the source of quality information, and serve as the standard for municipal and private laboratory performance. Certification of other laboratories will be based upon standards set here and the federal standards defined by laws and regulations.

##### **REFERENCE SERVICE PROVIDER:**

- The HETL will expand its role as the reference testing site for Maine and provide a model of efficient, low cost, quality testing that assesses public and environmental health through appropriate testing.

##### **TECHNICAL AND OPERATIONS RESEARCH LEADER:**

- The HETL will be recognized as a source of state of the art technology, both technical and operational. The HETL will have direct connectivity to technological advancement within the State.
- The HETL will assist the state in test selection for investigative research.

##### **PUBLIC SAFETY ENFORCEMENT:**

- The HETL will provide analytical, technical, and enforcement capability to help control the abuse of alcohol & drugs and the attendant public health consequences.
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## **Clean State Initiative Mission for the HETL**

Consistent with the HETL's responsibilities and roles in State Government and the State of Maine, the HETL and DHS are committed to reduce hazardous wastes in the laboratory. In addition, the HETL must follow all federal and state regulations concerning the management of hazardous substances.

The HETL is committed to supporting a culture of safety and environmental awareness. This culture is critical and requires that our programs at the laboratory on safety and environmental protection be combined.

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The HETL Chemical Hygiene Plan provides a template for activities to provide a safe environment for all staff. A safe working environment must include concern for chemicals, biologics, and management practices. This plan documents the HETL's commitment to a clean state government, applicable state and federal laws and regulations.

The HETL will continue to research methods to substitute hazardous reagents with less toxic ones and render hazardous wastes less harmful before final disposal.

### **Major activities that may effect the environment include:**

- Hazardous Materials and Biologics that are purchased and stored to be used for analytical purposes.
- Hazardous Wastes and Biohazardous Wastes produced as a result of testing or the collection of samples/specimens provided to the laboratory
- Operations that use or treat or store hazardous materials.

The HETL Chemical Hygiene Plan includes procedures, protocols, staff resources (i.e. a Safety Officer and Chemical Hygiene Officer and safety team and consultants) to manage and document the above activities.

Tables 1 through 4 provide current laboratory hazardous waste production volumes by laboratory section. The HETL is seeking to reduce hazardous waste production by 50%.

Tables 5 and 6 describe biomedical waste generation. There are some items that are included in our biomedical waste stream that do not fall under the category of waste. This would include gloves, packing material, gowns and urine. In evaluating reducing the amount of waste produced there are a few limited areas we could make changes. This would reduce the amount of waste produced in estimation by 5%.

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**Table 1 - Inorganics Laboratory**

HAZARDOUS WASTE STREAMS			
PROCESS	Qty/Mo (liters)	Characteristic	Disposal
Chloride Analysis	25	Corrosive, Toxic	Drum to Laidlaw
Chlorophyll Analysis	8.5	Ignitable	Drum to Laidlaw
COD Analysis	0.125	Corrosive, Toxic	Labpack to Laidlaw
Nitrate/nitrite Analysis	37.5	Corrosive, Toxic	Drum to Laidlaw
Sulfate Analysis	8.5	Corrosive, Ignitable	Drum to Laidlaw
TKN Analysis and Digested Samples	16	Corrosive, Toxic	Drum to Laidlaw
Total	95.625		

**Table 2 - Organics Laboratory**

HAZARDOUS WASTE STREAMS				
Process	Chemical Constituent	Qty/Mo (liters)	Characteristic	Disposal
Semivolatile Extract	Methylene Chloride	7 kg	Halogenated volatile	Transferred to methylene chloride waste container in volatile storage room. . Disposed as Hazardous Waste
Solvent rinse	Acetone Pet Ether	8 kg	Flammable	Transferred to flammable storage container in volatile storage room. Disposed as Hazardous Waste
Solid Samples (Soil)	PCBs DRO Pesticides	30 kg	PCB/Pesticide	Transferred to solids container in volatile storage room. Disposed as Hazardous Waste
HPLC Effluent	Water Methanol (50%) 0.1 % boric acid	30 kg	Ignitable	Transferred to flammable storage container in volatile storage room. Disposed as Hazardous Waste.

**Table 3 Chemistry Laboratory**

<b>Hazardous Waste Streams</b>				
<b>Process</b>	<b>Quantity</b>	<b>Chemical Constituent</b>	<b>Characteristic</b>	<b>Method of Disposal</b>
Enzyme Hydrolysis	20 Liters/yr.	Trisolvant/	Flammable	Organic Waste. Disposed as Hazardous Waste
Kentucky Based Hydrolysis	3.5Liters/year	Petroleum Ether, Methylene Chloride		Organic Waste. Disposed as Hazardous Waste
Phenylbutazone Quant	47 gallons	Acetonitrile		Acetonitrile. Disposed as Hazardous Waste
TC Drug Screen	16 liters/yr.	Ethyl Acetate and Methanol, Ammonium Hydroxide	Flammable	Organic Waste. Disposed as Hazardous Waste
TLC- LSD System	500ml/year	Chloroform, :Methanol	Flammable	Organic Waste. Disposed as Hazardous Waste
TLC- Marijuana System	2.5 Liters/yea	Ether, Hexane	Flammable	Organic Waste. Disposed as Hazardous Waste
Marijuana Identification	1.5 Liters/year	Solution A(1.25 ml/sample total volume = 0.5 ml/sample Vanillin Acetaldehyde, Ethanol Solution B Conc. HCL total volume =0.5 ml/sample Solution C total volume = 0.25 ml/sample Chloroform		Decanted into sodium bi-carbonate in fume hood
GC/MS Vials	1Liter/Year	Methylene Chloride		Organic Waste. Disposed as Hazardous Waste
Total Flammable Organic = 39 Liters/year Chlorinated Organic = 4.5 Liters/year, Acetonitrile = 47 gallons/year				

**Table 4 - Summary Table for all Laboratory Sections**

<b>Laboratory</b>	<b>Quantity</b>
Chemistry	( 3.6 liters x .026 ) + 47 gal ] x 8.3 = 40 lbs./MO
Organics	75 kg x 2.2= 165 lbs./mo
Inorganics	95.6 liters x 0.26) x 8.= 208 lbs./mo
<b>Total</b>	<b>413 lbs./mo</b>

**Table 5 - Biomedical Waste Generation**

Lab	Biosafety Level	Gloves, packaging materials,	Urine	Discarded Human Blood, Blood Products, and Body Fluids	Discarded cultures and stocks of infectious agents	Sharps	Pathological Waste
TB Lab	All level 3	Yes	Yes	Yes	Yes	Yes	Yes
Virology	Level 2 and 3	Yes	Yes	Yes	Yes	Yes	Yes
Bacteriology	Level 2 and 3	Yes	Yes	Yes	Yes	Yes	
Forensic Lab	Level 2	Yes	Yes	Yes		Yes	
Molecular Lab (PFGE)	Level 2	Yes		Yes	Yes	Yes	
Water Lab	Level 1	Yes*					
Organic Lab	Level 1	Yes*					

\* These are not used on infectious materials, but were included in the biomedical waste stream.

The HETL maintains two Bio-safety Level 3 laboratories. The DEP, US Department of Agriculture (USDA), and the US Public Health Service (USPHS) regulate the wastes from those laboratories. The USPHS, USDA, require that all wastes, including gloves, gowns etc from BSL 3 facilities are rendered noninfectious by sterilization before shipping off site and all wastes are destroyed by incineration.

Following is a chart of the amount of bio-medical waste generated by the HETL. Amounts were tallied for us by Stericycle the HETL's biomedical waste licensed transporter and disposal company. There may be an error in the amount generated during April of 2002 due to large amount listed and no change in our disposal patterns has occurred.

**Table 6 Medical Waste Generation – 2001-2002**

Month	Containers	Pounds
January	12	300
February	18	450
March	28	700
April	18	450
May	22	550
June	25	625
July	19	475
August	16	400
September	17	425
October	28	700
November	10	250
December	25	625
<b>2001 Total</b>	<b>238</b>	<b>5950</b>
January	18	450
February	20	500
March	31	775
April	47	1,175
<b>2002 Total to Date</b>	<b>116</b>	<b>2900</b>



## 4.0 Objectives and Targets Selection Process

Annual audits and periodic reviews by consultants, supervisors, and the safety committee lists all activities, products or services that the HETL can control and over which it can be expected to have an influence. These are documented by the Laboratory Safety Officer.

Upon reviewing the list of Department environmental aspects and impacts, the Department selected waste reduction and development of an environmental management system as objectives of this Clean Government Biennial Plan.

More specifically, the priorities include:

- Renovations to improve Engineering Controls within the facility. This building was built in the 1960's and requires modifications and modernization to provide these controls.
- Management of Chemical and Biological Reagents and Materials and the laboratory procedures that require these reagents. The desire is to reduce these quantities and to utilize the least harmful materials that meet our analytical requirements.
- Management of all Hazardous Wastes and Biohazardous Wastes. The goal is to become a small quantity generator plus and to reduce the quantity of wastes managed and stored in the facility
- Meet all state and federal regulations for hazardous materials and wastes.

These priorities will be addressed with appropriate state partners.

The on-going plan includes:

1. Re-evaluate hazardous waste streams and verify sources and classification
2. Identify most environmentally harmful wastes
3. Identify waste streams that can be treated or eliminated to reduce volume and management risk
4. Evaluate options for waste tracking normalized to production and establish appropriate metric
5. Identify new technologies that might replace existing technologies and reduce hazardous waste

Department objectives are further described in the following table.

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Objective	Target	Method of Measure	Performance Indicator	Action Plan	Responsible Personnel	Target Date	Cost
Reduce Hazardous Waste Generation	Achieve Small Quantity Generator Plus Generator Status	Weight of waste (pounds) from manifests	Pounds of hazardous waste per month within Small Quantity Generator Plus Status.	<ol style="list-style-type: none"> <li>Evaluate opportunities to modify the chloride/nitrate analytical procedure to reduce the quantity of hazardous waste generated <ul style="list-style-type: none"> <li>Contact other public laboratories within EPA Region 1</li> <li>Contact vendors to evaluate options for process modifications</li> <li>Conduct cost-benefit analysis</li> <li>Upon completing review select preferred options and request approval from EPA for process modification (if applicable)</li> </ul> </li> <li>Seek funding to modify process</li> <li>Implement new process</li> </ol>	Jack Krueger with consultant assistance	January 03	<p>Estimated consulting fee \$5K</p> <p>New Equipment cost unknown, ~\$50,000</p>
Reduce Hazardous Waste Generation	Achieve Small Quantity Generator Plus Generator Status	Weight of waste (pounds) from manifests	Pounds of hazardous waste per month within Small Quantity Generator Plus Status.	<ol style="list-style-type: none"> <li>Evaluate opportunities to modify semi-volatile testing by considering options for changing process to sold phase extraction. <ul style="list-style-type: none"> <li>Contact other public laboratories within EPA Region 1</li> <li>Contact vendors to evaluate options for process modifications</li> <li>Conduct cost-benefit analysis</li> <li>Upon completing review select preferred options and request approval from EPA for process modification (if applicable)</li> </ul> </li> </ol>	Jack Krueger with consultant assistance	January 03	<p>Estimated consulting costs \$5K. New equipment costs unknown. ~\$20,000</p>

Objective	Target	Method of Measure	Performance Indicator	Action Plan	Responsible Personnel	Target Date	Cost
Reduce Hazardous Waste Generation	Achieve Small Quantity Generator Plus Generator Status	Weight of waste (pounds) from manifests	Pounds of hazardous waste per month within Small Quantity Generator Plus Status.	1. Develop and implement new procedure calling for the managing and disposal of soil samples which test negative as non-hazardous waste	Jack Krueger	September 02	None
Implement Environmental Management System	Prepare and communicate EMS to Department	Management Review	EMS implementation is reviewed as part of the annual review of Department Policies.	1. Prepare draft EMS policy for review by the Commissioner and Bureau Chiefs 2. Incorporate recommended changes and issue policy to employees 3. Train staff on EMS requirements	Jack Krueger and Rudy Naples and Consultant Assistance	January 03	NA
Reduce Biomedical Waste Generation	Reduce by 5% the volume generated	Weight of waste (pounds) through manifests		1. Separate out specific wastes from the biomedical waste streams that do not meet the DEP definition of a biomedical waste.	Jack Krueger	January 03	

## **4.0 Recent Environmental Protection Efforts**

Specific recent accomplishments are described below

- A comprehensive wastestream analysis of all laboratory processes was completed.
- Updated the Chemical Hygiene Plan
- Modified chemical procurement procedure to reduce inventory of hazardous materials;
- Major renovation work in the lab has improved the volatile storage area.
- Recent training activities have taken place with all staff on hazardous materials and hazardous waste.
- Improved daily inspection records on satellite HW sites and included new assignments of responsibility for oversight
- Increased staffing in the busy times of the year to provide additional protection to staff and waste handling.
- Significant reductions in Hazardous Material purchases have been accomplished through centralized purchasing of supplies and agreement between lab sections to utilize a single grade of material, this reduces redundancy in material purchases, where the only difference is the lab grade.
- A consultant has been hired to make audits and provide assistance.
- An energy audit is being conducted by the state on this building.

## **5.0 Obstacles to Plan Implementation.**

The Department of Human Services embraces the goals of the Clean Government Initiative and expects that it can complete the goals set forth in this plan within the target dates identified assuming that funding is made available for improvements and current freezes in dedicated revenue will not deter this ambitious plan.

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